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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SOUAYA, JEHANNE E	

ART UNIT	PAPER NUMBER
1634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/258,216	Applicant(s) Soderlund et al
	Examiner Jehanne Souaya	Art Unit 1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Sep 26, 2002* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *40-81* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *40-81* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

The examiner reviewing your application at the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to examiner Jehanne Souaya.

Continued Prosecution Application

1. The request filed on 9/26/2002 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/258,216 is acceptable and a CPA has been established. An action on the CPA follows.

2. Currently, claims 40-81 are pending. No amendments or arguments were filed with the request for CPA, therefore the previous office action is reiterated below. This action is NON-FINAL as the previous office action erroneously rejected the canceled claims under non statutory double patenting. This rejection is applied to the instantly pending claims.

Claim Rejections - 35 USC § 112

Indefinite

3. Claims 40-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) Claims 40-50, 61-71 are indefinite over the recitation in step d of "the labeling moiety at the 3' end" because the is phrase lacks antecedent basis. Step c recites that a "detectable primer extension product comprising a labeling moiety is formed" but does not recite that the labeling moiety is at the 3' end of the primer extension product. Consequently, the claims are not clear as to whether these two labeled primer extension products are the same or different reagents.

B) Claims 51-60 are indefinite over the recitation in step d of "which differs depending on whether the chain terminating nucleotide analogue is complementary or not complementary to the defined site". This phrase makes the claims unclear because it does not clearly set forth how or from what the "detectable primer extension product" 'differs'.

C) Claims 61-71 are further indefinite over the recitation in step c of the phrase "none of the chain terminating nucleotide analogues are not complementary to the defined site" because this phrase contains a double negative which renders the claims unclear. That is, the claims are unclear as to whether they are intended to mean that all of the chain terminators are not complementary or that all of the chain terminators are complementary.

D) Claims 72-81 are indefinite over the recitation of the phrase "which differs depending on whether one of the chain terminating nucleotide analogues is complementary to the defined site or none of the chain terminating nucleotide analogues is complementary to the defined site". This phrase makes the claims unclear because it does not clearly set forth how or from what the "detectable primer extension product" 'differs'.

New Matter

4. Claims 40-81 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a New Matter rejection.

Claims 40-81 are not supported by the specification for the reasons that follow, and therefore introduce new matter into these claims. Claims 40-50 are drawn to a method for identifying nucleotide at a defined site by hybridizing a primer whose 3' end binds to a nucleotide flanking the nucleotide to be detected and extending the primer in the presence of at least one deoxynucleotide and a chain terminating nucleotide to form a detectable extension product containing a labeling moiety if the chain terminator is not complementary to the nucleotide to be identified. Claims 51-60 are drawn to the same method wherein the primer is extended in the presence of at least one deoxynucleotide and a chain terminating nucleotide analogue such that a detectable product is formed which differs depending upon whether or not the chain terminating nucleotide is complementary to the defined site. Claims 61-71 are drawn to the same method wherein primer extension is performed in the presence of at least one deoxynucleotide and more than one chain terminating nucleotide analogue such that a detectable primer extension product comprising a labeling moiety is formed if [none of] the chan terminators are not complementary to the defined site. Claims 72-81 are drawn to the same method wherein primer extension occurs in the presence of at least one deoxynucleotide and more than one chain terminator such that the

primer extension product differs depending upon whether or not the one chain terminating nucleotide is complementary to the defined site or whether none of the chain terminators are complementary.

However, a thorough review of the specification reveals that the specification does not describe such methods. Specifically, the specification teaches that the method uses labeled nucleotides that match the variable nucleotide to detect the variable nucleotide in the target nucleic acid (page 7, lines 17-19 and page 10-lines 4-7). Pages 10-14, line 5 of the specification describe introducing an affinity moiety into the target nucleic acid during amplification of the target nucleic acid (prior to the detection steps for the variable nucleotide) to allow immobilization of the target nucleic. Page 14, lines 6-28 describe the separation of the amplified target nucleic acid from the amplification mixture. Page 15 through page 16, line 11 describes the detection step primer and teaches that it can be modified to have an affinity moiety different from the affinity moiety used during amplification but teaches that the preferred detection primer is unmodified. Pages 16, line 12, through page 17 line 19 describes the extension of the detection primer. Here the specification teaches that the nucleotide mixture may be one or more nucleoside triphosphate but includes at least one labeled or modified nucleotide which is either a labeled dNTP or a dideoxynucleotide (ddNTP). Page 17 teaches that the dNTP or ddNTP is labeled with a detectable label or modified to have an attachment moiety capable of binding to a detectable label. Page 17, line 20-page 20 teaches particular embodiments of the invention. Here the specification describes a) a method wherein only labeled ddNTP's corresponding to the

variable nucleotide is added; b) a method wherein labeled dNTP corresponding to the variable nucleotide is added and that unlabeled ddNTP is preferably included in this embodiment; c) a method which uses two or more different, differently labeled dNTPs corresponding to the variable nucleotide; d) a method using a detection step primer which is n nucleotides away from the variable nucleotide and using unlabeled dNTPs which are complementary to the n nucleotides between the primer and the variable nucleotide and labeled dNTPs corresponding to the variable nucleotide which could be substituted for labeled ddNTPs; and e) a method wherein two or more variable nucleotides are identified which requires the use of at least two different detection primers that hybridize 3' of each of the variable nucleotides to be identified. Pages 21-38 describe specific examples and further exemplify labeling with radiolabels, enzyme labels and fluorescent labels.

The specification does not, however, describe a method wherein extension occurs in the presence of at least one deoxynucleotide and one or more chain terminating oligonucleotides wherein neither the deoxynucleotide nor the chain terminator is detectably labeled as is now encompassed by the claims. The specification does not teach labeling the primer extension product after the deoxynucleotide and/or the chain terminator is incorporated but such a method is now encompassed by the claims. The specification is very specific that either the deoxynucleotide or the chain terminating nucleotide analogue is labeled and the means by which the variable nucleotide is detected. The specification does not describe broadly the concept of forming a primer extension product that contains a label at the 3' end when the chain terminator

is not complementary to the variable nucleotide. Instead the specification teaches that a labeled deoxynucleotide is used when the chain terminator is not complementary to the variable base. The method described in the specification is directed to detecting nucleotide of known sequence so the base on the deoxynucleotides and the chain terminators for use in the method is predetermined. Consequently, whether or not the deoxynucleotide or the chain terminator will hybridize to the defined site is also predetermined. The specification is clear that either the deoxynucleotide or the chain terminator is labeled (directly or indirectly) in this method. Consequently, the specification does not support the method of claims 40-81 which recite the primer is extended in the presence of a deoxynucleotide or chain terminator which may or may not be labeled.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 40-81 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,013,431. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application contain overlapping subject matter with the claim of the '431 patent. The claims of the '431 patent are drawn to a method for determining a nucleotide variation at a defined site using a primer which hybridizes at it's 3' end to the nucleotide flanking the nucleotide variation and extending in the presence of a mixture containing at least one labeled deoxynucleotide and at least one dideoxynucleotide. The instant claims are more broadly drawn to the same method wherein extension occurs in the presence of a mixture containing at least one deoxynucleotide and one or more than one chain terminating nucleotide analogue, wherein the deoxynucleotide or the chain terminator may or may not be labeled. Because the instant claims and those of the '431 patent both include a method wherein the deoxynucleotide is labeled, the claims of the '431 patent and the instant claims contain overlapping subject matter.

Conclusion

7. No claims are allowable.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Jehanne Souaya whose telephone number is (703)308-6565. The examiner can normally be reached Monday-Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703) 308-1152. The fax phone number for this Group is (703) 305-3014.

Any inquiry of a general nature should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Jehanne Souaya

Jehanne Souaya
Patent examiner
Art Unit 1634
2/24/03